

## NWR Transmitter Preventive Maintenance Schedule

(Refer to Draft Communications Maintenance Note 56, 2/27/04)

**Routine Remote (Off-Site) Performance Monitoring.** The technician will remotely monitor the transmitters at all sites on a MONTHLY basis to verify that parameters remain within specifications. Monitoring is to be performed using special dial-in software on the Crown and Armstrong transmitters. Other transmitters use ROAMS (Remote Off Air Monitoring System) only for remote dial-in monitoring.

### REMOTE PERFORMANCE MONITORING SCHEDULE FOR ALL NWR TRANSMITTERS

ALL MONITORING CHECKS BELOW TO BE PERFORMED EVERY MONTH		
Maintenance Function	Procedure	Remarks
1. Remote Check of Exciter/Power Amplifier Currents, Supply Voltages, Transmitter Forward and Reflected Power	<u>SRS</u> : none <u>Energy-Onix</u> : none <u>Crown</u> : Dial-in and monitor using the Gentner GSC300 software (Crown User Manual, section 2) <u>Armstrong</u> : Dial-in and monitor using the Armstrong control and monitoring software (Armstrong Operation Manual, section 2.5) <u>General Electric</u> : None	If any voltages or currents abnormally high or low, troubleshoot
2. Remote Check of Voice Broadcast Quality and Stored Fault Conditions	<u>SRS</u> : Dial-in using ROAMS <u>Energy-Onix</u> : Dial-in using ROAMS <u>Crown</u> : Dial-in using ROAMS <u>Armstrong</u> : Dial-in using ROAMS <u>General Electric</u> : Dial-in using ROAMS	Troubleshoot problem if fault condition exists

**On-Site Routine Maintenance.** Routine maintenance will be performed every 4 months, as a minimum, in accordance with the requirements stated in the maintenance schedule below. Perform the routine maintenance operations listed in the table whenever a service call is made at the transmitter site or, if no trouble call is received from a station within a 4 month period, a special visit will be made to perform the routine maintenance.

The maintenance data log attached to the transmitters must be updated after each maintenance action and a copy of the log submitted to the designated Government offices. Upon completion of routine maintenance, the transmitter system must be made fully operational and functional at the authorized output power, within required frequency and modulation tolerance, and in compliance with all technical descriptions and specifications of the manufacturers' equipment manuals. In addition, a table (see Attachment **G**) is provided that can be filled in as the maintenance functions are performed.

Prior to the start of the maintenance procedures, the transmitter technician will first contact the associated forecast office to request that a public information statement (PNS) be sent out notifying the public that the transmitter will be undergoing maintenance and broadcasts may be periodically interrupted. For the audio input level tests (Maintenance Function 7, "Check Audio Input Level"), the technician will request the forecast office transmit the alert tone and SAME tones for the purpose of verifying proper signal level on the transmitter audio program line (described in Attachment C). These are both part of the procedures below. Any change in audio input level outside the specifications must be reported to the forecast office maintenance focal point.

**NOTE:** For Maintenance Function No. 4 and 7, the transmitter output will be into a dummy load.

### **ON-SITE PREVENTIVE MAINTENANCE AND PERFORMANCE MEASUREMENT SCHEDULE FOR ALL NWR TRANSMITTERS**

ALL MAINTENANCE AND PERFORMANCE MEASUREMENTS BELOW TO BE PERFORMED EVERY 4 MONTHS		
Maintenance Function	Procedure	Remarks
1. Clean or replace air filters, clean modules, fans, and system cabinet.	Vacuum and brush any dirt from the cooling fans. Vacuum any dirt from the base of the transmitter system cabinet.  Refer to the procedures for the specific transmitter.	Power off the appropriate transmitter prior to performing.
2. Visual inspection and cooling fan(s) operational check	Visually check for signs of burned or broken components or loose or damaged cables. Check for proper operation of cooling fans (and if noisy).  Refer to the procedures for the specific transmitter.	Take corrective action as needed.
3. Check lamps, leds, and readouts/displays.	Visually check all lamps, LEDs and readouts to ensure that they indicate at proper times. Replace as necessary.  Refer to the procedures for the specific transmitter.	
4. Check transmitter forward and reflected power.	Refer to the procedures for the specific transmitter.	High reflected power may indicate a bad cavity, antenna cable or antenna.

Maintenance Function	Procedure	Remarks
5. Check exciter/power amplifier currents and supply voltages.	Refer to the procedures for the specific transmitter.	If any voltages or currents abnormally high or low, troubleshoot.
6. Check carrier (operating) frequency.	Refer to the procedures for the specific transmitter.	Adjust if necessary.
7. Check Audio Input Level a. 1050 Hz Alert Tone b. SAME signal from hardware panel c. SAME burst from CRS Console	Refer to the procedures in Attachment <b>B</b> . Procedures in Attachment <b>C</b> will be used at the forecast office.	Test tones are generated at the forecast office.
8. Check voice modulation and deviation level and quality.	Refer to the procedures for the specific transmitter.	Use a Comms Analyzer - warm up for at least 20 minutes.
9. Check proper transmitter transfer using ACP and CRS Console; final transfer to backup transmitter (dual transmitters only)	Refer to the procedures for the specific transmitter. Call the appropriate WFO and have the operator switch transmitters using the CRS Audio Control Panel and CRS console software application.	ROAMS still disabled when switching transmitters

## OFF-SITE PERFORMANCE MEASUREMENT SCHEDULE FOR ALL NWR TRANSMITTERS

ALL MEASUREMENTS BELOW TO BE PERFORMED ONCE PER YEAR		
Maintenance Function	Procedure	Remarks
10. Signal strength measurement	Refer to the procedures in Attachment <b>D</b> for all transmitters.	Time interval: 9 to 13 months

### NOTES:

1. Test equipment used for the procedures must have a current calibration certificate and date sticker traceable to the National Institute of Standards and Technology (NIST).
2. Warm up the Communications Analyzer at least 20 minutes prior to using it for measurements.
3. After procedure 8 in the above table has been performed, disconnect the antenna cable from the dummy load, and re-connect the antenna cable to the antenna.
3. Procedure 9 attempts to equalize the operating time for each transmitter (dual models). If the operator has already switched recently, the last part does not have to be performed.